



*Glass Tile LOVE*  
INSTALLATION MANUAL  
**LAYING OPERATIONS**

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This installation manual seeks to provide useful information for the correct installation of Design Tile's *Glass Tile LOVE* glass mosaics ([LOVE Rain](#), [LOVE Chips](#), [LOVE Rectangles](#) and [LOVE Hex](#) from our collection).

## THE SUBSTRATE

Before laying the mosaic, perform the following checks of the characteristics that the supports must have.

### Flatness

For *Glass Tile LOVE* mosaics, the unevenness must not exceed ¼" in 10', ideal is 1/8" in 10'. Small irregularities can be corrected using the adhesive itself for flattening but with more severe irregularities must be corrected by using one of the following cement-based leveling compounds produced by Litokol SpA:

**Litoliv Extra 15:** Ultra-quick drying and hardening self-leveling cementitious mortar for substrates from 1 to 15 mm. Internal use. Product with ultra-low volatile organic compound (VOC) emissions. (EMICODE EC1PLUS), of class CT 30F7 according to UNI EN13813.

**Litoplan Smart:** Cementitious thixotropic levelling layer featuring rapid hardening and drying for vertical and horizontal applications indoors and outdoors in a range of thicknesses from 1 to 25 mm. Product with ultra-low volatile organic compound (VOC) emissions. (Emicode EC1PLUS), of class CT C16F5 according to UNI EN 13813.

### Aging and moisture levels

No matter the type of support you are laying the tiles on it is crucial to respect its aging process. This should ensure that the dimensions of the support stay stable, and no shrinkages will happen after laying the tiles. For the cement-based screeds the aging time can be from 7 to 10 days per ½ inch of thickness. You can obtain shorter aging using in place of common Portland cement, special normal and rapid drying hydraulic binding materials such as Litocem or Litocem Pronto (Normal setting and fast-drying special hydraulic binder for screeds indoors and outdoors.) that allows the laying of glass mosaics after 24 h. For cement based supports, moisture content should not exceed 3%. For concrete surfaces the aging lasts at least 6 months. Gypsum-based substrates, as for example anhydrite-based screeds or gypsum plasters, must not exceed a maximum residual moisture of 0.5%.

### Cleaning

For a proper installation of the tiles it is really important that the substrates are clean, their surface must be clear of all loose fragments, paint, wax, grease, oil or anything that may cause improper adhesion of the tiles to the surface. Concrete substrates must be cleared of release agent residues. In case of a ceramic surface it must be completely degreased with an alkaline detergent or with a caustic soda water solution. Instead of cleaning you may sand the surface with a 60-80 grain abrasive sandpaper and remove the resulting dust.

## Mechanical strength

In flooring, the mechanical compressive strength of the substrate must be adequate for the characteristics of the area of destination. As an example, for a cement-based screed in an internal residential building the required minimal compressive strength is of 16 N/mm<sup>2</sup> for non-heating floors and 20 N/mm<sup>2</sup> for heating ones. On the other hand a cement based or gypsum-based plaster applied on an indoor wall should have the following adhesive strength, ranging at least 0.5-0.7 N/mm<sup>2</sup>. Regarding outdoor façade plaster, ensure that the plaster can stand the weight of the glass mosaic and therefore can at least stand an adhesion value of 1 N/mm<sup>2</sup>.

## Preparation of the substrate for laying *Glass Tile LOVE* mosaics

When installing *Glass Tile LOVE* mosaic it is important to consider that because of the nature of the glass mosaic if this material is installed on top of white adhesive, the mosaic on top will stand out. A small final result test before the committing to a full installation is recommended, in order to see the final result of the selected mosaic in that location when is influenced by the background and the lighting. For some surfaces that are more challenging for the adhesives such as very smooth surfaces, poorly absorbent ones or surfaces subject to vibrations and dilations, we recommend the use of K-100 Hyperflex or Litoelastic EVO as adhesive. Before installing it is also recommended to ensure that the tiles and panels are going to be correctly aligned. In order to ensure this we recommend tracing lines on the surface of installation, if aided by squares and level detectors and laser instruments this task will be easier and more reliable. Make sure that the gap between sheets is equal as the gap between tiles, and calculate the measures as if you were going to install three sheets.



















































Once the calculations are done transfer these measurements to the surface to be tiled, both horizontally and vertically with the help of a straight edge and a lattice level. This will create squares in which you can fit nine sheets.

## RECOMMENDED ADHESIVES




Here we include a chart to recommend and guide you through the decision of which type of adhesive to use for each of our mosaics and for the different supports on which it can be installed. Please note that some sizes of mosaic require different types of adhesive for the same support. For walls in most cases a white adhesive with zero vertical slip is recommended, as we have previously mentioned the whiteness of the surface may affect the final look of the glass mosaic. We would also like to mention that by using the [epoxy mortar Starlike®EVO](#), which can be used as both adhesive and grouting for the joints. This fact allows the use of one same colour for all the installation creating a more homogeneous and harmonic result.

## CHART FOR THE CHOICE OF ADHESIVE

		<i>Glass Tile LOVE</i> REFERENCES					
SUPPORTS		LOVE Rain Mesh Back			Poly-Cord Mount 1"x1", 1"x2", HEX & Rain		
<b>INDOOR FLOORS</b>	Separated cement-based or seasoned floating screed	2	3	1	2	3	
	Dry anhydrite screeds, sanded and treated with primer C	2	3	1	2	3	
	Cement-based screeds heated after the pre-heating cycle	2	3	1	2	3	
	Smoothed concrete slabs	2	3	1	2	3	
	Wooden or metal panels	2	3	1	2	3	
	Surfaces waterproofed with Coverflex or Aquamaster	2	3	1	2	3	
	Old Existing tiling in ceramics or stone	2	3	1	2	3	
<b>INDOOR WALLS</b>	Cement-based plasters	2	3	1	2	3	
	Concrete	2	3	1	2	3	
	Gypsum-based plaster treated with Primer C	2	3	1	2	3	
	Drywall	2	3	1	2	3	
	Wooden or metal panels	2	3	1	2	3	
	Plexiglass, polycarbonate, glass, crystal panel	Laying not recommended					
	Preformed panels in polystyrene	2	3	1	2	3	
	Surfaces waterproofed with Coverflex or Aquamaster	2	3	1	2	3	
	Old existing tiling in ceramics or stone	2	3	1	2	3	

<b>OUTDOOR FLOORS</b>	Separated cement-based or seasoned floating screeds	 	  
	Seasoned concrete structures	 	  
	Old existing tiles in ceramics or stone	 	  
	Surfaces waterproofed with Coverflex or Aquamaster	 	  
<b>OUTDOOR WALLS</b>	Cement-based plaster on seasoned walling	 	  
	Poured concrete or seasoned prefabricated	 	  
	Existing old tiles ceramic or stone tiling	 	  
<b>WET AREAS</b>	Bathrooms, shower cubicles	 	  
	Reinforced concrete swimming pools waterproofed with Coverflex or Aquamaster	 	  
	Hamam with substrates made of waterproof extruded polystyrene panels	 	  

## RECOMMENDED ADHESIVES CHART

	<a href="#">K-100 Hyperflex</a>	C2TE-S2	Cement-based super-white high-performance adhesive (C2) non vertical slip (T) and extended open time (E) deformable
	<a href="#">Litoelastic EVO</a>	R2T	Reactive super-white high-performance adhesive (R2) no vertical slip (T)
	<a href="#">Starlike® EVO</a>	R2T	Completely white high-performance adhesive (R2) with no vertical slip (T)

## LAYING OPERATION

First apply the adhesive mortar on the smooth edge of the trowel, this is called "Keying-In" and this will serve to provide the best substrate to adhesive contact. Right after this apply an additional quantity of the adhesive on top of the surface by using a 1/8" or 3/16" notched trowel.

We recommend against covering larger areas with adhesive, this will avoid the creation of a film on the surface of the adhesive that disallows bonding. The maximum area to be covered at once varies depending on the location of the installation, the environment and the weather. Once considering this, apply the mosaic sheets by tapping the tiles with a rubber float to ensure a perfect adhesion, preventing air bubbles and preventing the adhesive from leaking into the joints between the tiles and leaving enough thickness for the subsequent grouting.

If a paper-mounted mosaic is being used, the paper must be removed after approximately 24 hours or after the adhesive is completely dry. In order to remove the paper just with a wet sponge by moistening the paper until separation is allowed and pulling diagonally from it and keeping it close to the surface. After removing the paper it is recommended to clean (with clean water) the mosaics surface from any residue of paper glue that may affect the grouting step.

## INSTALLATION IN WET AREAS SUCH AS BATHROOMS, SHOWER CUBICLES, POOLS, HAMMAM AND HOT WATER SPAS

We recommend to look deeper into the details when tackling one of these types of projects due to some issues that may come up according to our experience. Find below some tips and warnings for a correct installation.

### Swimming pools in concrete

We recommend to do the following checks and inspections of the structure before installing mosaic.

**Proper waterproofing:** The underground concrete structure, on its outer walls has to be properly waterproofed before covering the excavation. If not, negative water pressure may enter the inner surface of the structure.

**Proper aging period:** The cast concrete structure needs an aging period of about 6 months.

After this period the dimensionality of the structure can be considered stable and free of hydrometric shrinkages. Shotcrete or Gunitite structures requires differing cure times and these times must be followed according to the applicable trade recommendations.

**Water test:** The structure by itself needs to be checked by doing a static test, by filling it with water to accelerate the processes of structural adjustment and check if the waterproofing avoids any leakages that can be solve right away.

**Rectifying:** The inner walls and floors need to be flattened and rectified as we have previously mentioned. For this used the adequate polymer-modified cement mortar.

**Waterproofing:** It is important to note that the mosaics do not provide a waterproof sealing effect to the surface on with they are installed. To achieve a total sealing of the pool, it is necessary to apply an appropriate two-component cement based waterproofing mortar before installing the glass mosaic. Products such as Coverflex or Aquamaster are suited for this.

**Adhesives:** For installing the tiles use the adhesive suggested in the chart for the task, and apply it by using the techniques described previously. Minimum 95% contact with tile and substrate is required for pools or other high stress applications like steam showers

**Grouting:** for grouting glass mosaic tiles we recommend the use of a product like [Starlike® EVO](#), being a two-component epoxy mortar it has properties that avoid water absorption, high mechanical and chemical resistance and it's specially durable compared to other cement based or urethane or single component grout. We consider as a must the use of [Starlike® EVO](#) in thermal spas and water features containing salt or sea water. As an aesthetic tip if there is going to be an area with some wet areas and some dry ones (infinity pools, waterfalls...) we recommend the use of epoxy grout as the colour of the grout will not be affected by the water, giving the whole surface a more homogeneous look.

Additionally for wet areas such as pools we recommend using a mounting system that leaves more than an 80% of free space on the back of the tile. All the tiles that we currently work with are available at least in one system with these characteristics (Polyurethane Cord, PVC dots or paper-face mounting can be done via a special order from the factory with extended lead times).

## Swimming pools made of metal or fiberglass

When it comes to installing our glass mosaic in swimming pools with metal structures it is mandatory to make sure that it is AISI 316 stainless steel for direct bond or a 2 coat method for 314 stainless steel. For this task the product that has to be used is the [Litoelastic EVO flexible 2-part reactive adhesive](#) for tiling a fiberglass swimming pool, prior to this we need to sand the surface. For this we will need to use a 80-100 grit sandpaper, afterwards remove the thoroughly the generated dust and directly glue the tiles to it by using Litoelastic EVO.

## Hamмам

The Hammam or Turkish bath is a high humidity area (saturated with water) and high temperatures (+30°C - +60° C or 86F-140F). The most common thing for Hammams is to be made of prefabricated panels and to have features made of extruded polystyrene and coated to be waterproof in various shapes that need to be tiled (benches, seats, sunbeds...). Due to these conditions we suggest the use of [Starlike® EVO epoxy mortar](#), this product will provide the required durability and will enable a better hygiene and maintainability of the surface.



For wet areas such as hammams we recommend using a mounting system that leaves more than an 80% of free space on the back of the tile. All the tiles that we currently work with are available at least in one system with these characteristics (Polyurethane Cord, PVC dots or paper-face mounting can be done via a special order from the factory with extended lead times).

## GROUTING

Before beginning with the grouting make sure that: the adhesive used to glue the tiles to the surface is completely dry and hardened, as well as the joints are completely dry. After checking this mechanically remove any adhesive that may have leaked into the joints. Design Tile recommends using [STARLIKE® EVO epoxy mortar](#) produced by Litokol S.p.A. for the grouting of its mosaics to guarantee the following advantages:

- Homogeneous and brilliant colour
- Wide colour range
- Water absorption practically does not exist
- Easy of application and cleaning
- High final resistance of the grouting and therefore greater durability

Carefully observe the directions provided in the product packaging and described below. Make sure the conditions of the work site are suitable for the application

### **Starlike® EVO Crystal**

[Starlike® EVO Crystal](#) is designed for the grout of transparent and artistic vitreous mosaics. Its special formula based on aggregate made of glass beads allows the product applied in the joints to “absorb” the colour of the glass tiles and then change accordingly to their body color.

Another potential use of [Starlike® EVO Crystal](#) concerns the grouting of artistic mosaics or compositions made of mosaic tiles that, properly mixed and placed, reproduce unique images.

Using Starlike® EVO Crystal, due to its semi-transparency, the original shades of the composition are maintained, creating “neutral” colourless grout lines without interfering with the whole image. For all applications of thin mosaics with Starlike® EVO Crystal we suggest the use of a 1/8” notched trowel to spread the white adhesive and flatten the notched surface before applying mosaic; this process will avoid any higher points of adhesive showing through the grout.

With [Starlike® EVO Color Crystal](#) it is possible, after identifying the most suitable colour combination, to achieve “tone on tone” grouting even in the case of non-transparent mosaics, further enhancing the mosaic itself.

## HOW TO APPLY STARLIKE® EVO

Here a panel on how to apply Starlike® EVO

1		Empty completely all the contents of the catalyst (B) onto the paste (A).	Verter todo el contenido del catalizador (B), en la pasta (A).
2		Special finishes: pour the additive onto the paste and mix slowly.	Acabados especiales: verter el aditivo en la mezcla y mezclar lentamente.
3		Mix using an electric drill equipped with mixing paddle. Scrape the walls of the bucket to eliminate all parts of non-catalysed product.	Mezclar con el taladro con hélice. Raspar las paredes del balde para evitar partes no catalizadas.
4		The joints must be dry. Introduce the mortar into the joints using the suitable green rubber float (art. 946GR) spreading diagonally across the joints. Remove the excess product.	Las juntas deben estar secas. Aplicar con la espátula de goma verde (Art. 946GR) con movimientos diagonales en dirección de las juntas. Quitar el producto en exceso.
5		The grout must be cleaned while the product is still wet. Sprinkle clean water. Initial cleaning using a moistened white felt (art. 109/G) making circular movements. Ensure no water enters the joints.	Realizar la limpieza con el producto fresco. Enjuagar con agua limpia. Primera limpieza con fieltro blanco mojado (art. 109/G) y movimientos circulares. Evitar que el agua termine en las juntas vacías.
6		Now perform a second cleaning with a rigid cellulose sponge (art. 128/G).	Segunda limpieza con esponja rígida de sweepex (art. 128/G).
7		Any stains of the transparent product can be removed after 24 hours or anyway after the gap has hardened. Use LITONET (floors) or LITONET GEL (walls). Spread Litonet or Litonet Gel with the white felt.	Alones transparentes se pueden quitar después de las 24 horas o después del endurecimiento de la junta. Utilizar LITONET (pavimentos) y LITONET GEL (paredes). Rociar Litonet o Litonet Gel con el fieltro blanco.
8		Leave on for 15-30 minutes. Scrub the surface with the white felt.	Dejar actuar por 15-30 minutos. Frotar la superficie con el fieltro blanco.
9		Rinse with clean water. Dry immediately with a clean cloth and do not wait for the evaporation of the rinse water.	Enjuagar con agua limpia. Secar rápidamente con un paño limpio sin esperar la evaporación del agua.

### ADVISED TOOLS / EQUIPO RECOMENDADO



#### How-to-use video

For correct use of the product and for further information, please see the technical data sheet on [www.litokol.it](http://www.litokol.it)

Para un uso correcto y para obtener más información, consulte la ficha técnica en [www.litokol.it](http://www.litokol.it)

## TABLE OF CONSUMPTION

The following tables provide the consumption indications of the products for REVIGLASS mosaics installations.

### Adhesive consumption for mosaics

ADHESIVES	1/8" Trowel	3/16" Trowel
<b>HYPERFLEX K100</b>	.21 lbs per sf.	.32 lbs per sf.
<b>LITOELASTIC EVO</b>	.20 lbs per sf.	.30 lbs per sf.
<b>STARLIKE® EVO</b>	.20 lbs per sf.	.30 lbs per sf.

### Grout consumption for mosaics

MOSAIC SIZES	STARLIKE® EVO
<b>1x1</b>	.27 lbs per sf.
<b>1x2</b>	.20 lbs per sf.
<b>Hex</b>	.25 lbs per sf.
<b>Rain (Pebble)</b>	.35 lbs per sf.

## CARE AND MAINTENANCE

Design Tile's [Glass Tile LOVE Series](#) mosaics are both durable and stain resistant, but care should be taken to prolong the beauty of the mosaic. To maximize the life of your mosaic and retain its artistic integrity, please follow the below steps for the maintenance of Glass Tile LOVE and Starlike grouting applications:

- For regular and daily cleaning use only a mild, pH-neutral detergent cleaner and damp sponge or rag to clean your mosaic.
- For more build up or heavy cleaning of limescale, calcium or efflorescence like present in showers or pools use Litokol Litoclean or Litoclean EVO
- Do not use acid, alkaline, and solvent-based cleaners. They can damage and/or discolor the tiles and the grout.
- Do not wax any part of your mosaic.
- Do not let stains sit on your mosaic's surface for extended periods. Clean promptly.
- Always test cleaner in a small inconspicuous area prior to use throughout the installation to determine suitability and use of care and maintenance products.

## DISCLAIMER

All instructions contained in this document are given in good faith and on the basis of extensive research conducted by Design Tile and Litokol in their respective laboratories. However, because conditions and methods of use are beyond our control, this guideline must not be intended as a substitution of necessary preliminary tests, it is crucial to ensure that all the materials are suitable and specifically required for the final singular application. Design Tile and Litokol do not accept responsibility for the results obtained using methods beyond our control. It is the responsibility of the final user to determine the proper suitability of materials for the desired application and to adopt all precautions for the safety of property and persons against any hazards that may be associated with the use of the product. We strongly recommend that each user carries out his own application test before final use. These guidelines shall not be taken as an incitement to infringe any rights under patent protection. All information contained in this document is subject to change without prior notice. Tests were conducted on materials produced and preserved in good condition and free from defects of any kind caused by an unsuitable transport and storage.